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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,045	12/21/2000	Sung-Kon Kim	3430-0154P	5517

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EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/741,045

Applicant(s)

KIM, SUNG-KON

Examiner

Thoi V. Duong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 ~~is~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the Appeal Brief filed on January 17, 2006, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

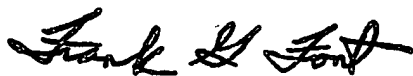
To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Frank Font



Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakubo et al. (Nagakubo, USPN 6,219,117 B1) in view of Matsumoto (USPN 5,649,754).

Re claim 1, as shown in Figs. 1 and 3, Nagakubo discloses a back light device for use in a liquid crystal display device 1, comprising:

at least one lamp 8;

a light guide plate 5 (light transmission member) for guiding light emitting from the lamp;

a diffusing sheet 4 for diffusing light emitting from the light guide plate;

at least one prism sheet 3 located on the diffusing sheet, concentrating light (col. 6, lines 30-34);

a protecting sheet 2 located on the prism sheet;

a reflector 6 located under the light guide plate, reflecting light directing downward the light guide plate,

wherein an edge portion of the diffusing sheet 4 adjacent to the lamp 8 includes a printing portion 4a made of ink having white material containing a light scattering agent since the printing portion 4a is a part of the diffusing sheet 4 (col. 7, lines 22-47).

Re claim 3, as shown in Fig. 1, although Nagakubo discloses a liquid crystal panel including two substrates and a back light device described above, Nagakubo does not disclose a liquid crystal layer interposed between the two substrates. However, it is obvious that the liquid crystal display device will not work without a liquid crystal layer.

Nagakubo discloses a back light device for use in a liquid crystal display device that is basically the same as that recited in claims 1 and 3 except for the ink being colorless instead of white.

As shown in Fig. 3(B), Matsumoto discloses a back light device for use in a liquid crystal device comprising a diffusing plate 8 having a printing portion 10 made of transparent ink (or colorless ink) to reduce irregular reflection, wherein the quantity of irregular reflection is adjustable by varying the degree of roughness of the transparent ink surfaces or by mixing an irregularly reflecting additive (or light scattering agent) into the transparent ink (col. 6, lines 29-65).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the diffusing sheet of the back light device of Nagakubo with the teaching of Matsumoto by using colorless ink containing a light scattering agent for the printing portion in order to cause irregular reflection in an appropriate degree, and hence provide a substantially uniform intensity of illumination (col. 6, lines 32-57 and col. 7, lines 5-8).

Re claims 2 and 4, Nagakubo discloses that the back light device has two lamps (col. 14, lines 9-15).

Re claims 5 and 7, Nagakubo discloses that the light guide plate 5 has a plurality of patterns 5b for reflecting the light upward (col. 6, lines 42-44).

Re claims 9 and 10, as shown in Figs. 1 and 2, Nagakubo discloses that light reflected from a bottom surface (as the first light beam) of the device causes constructive interference with light emitting from the lamp (as the second light beam A),

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whereby a bright line (emission line) is prevented (col. 7, line 43 through col. 8, line 30 and col. 14, lines 15-28).

4. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakubo et al. (Nagakubo, USPN 6,219,117 B1) in view of Matsumoto (USPN 5,649,754) as applied to claims 1-5, 7, 9 and 10 above and further in view of Mashino et al. (Mashino, USPN 5,886,759).

Nagakubo in view of Matsumoto discloses a liquid crystal display device that is basically the same as that recited in claims 6 and 8 except for the light guide plate having a plurality of dot patterns.

As shown in Fig. 1A, Mashino et al. discloses a back light device comprising a light guide plate 37 having a pattern of a plurality of light diffusion dots 67 on the underside of the light guide plate for transmitting light introduced into the light guide plate and subjected to total reflection (col. 4, lines 34-38).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal display of Nagakubo with the teaching of Mashino by forming a light guide plate having a plurality of dot patterns for effectively transmitting light introduced into the light guide (col. 4, lines 34-38).

5. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (Suga, USPN 6,425,673 B1) in view of Matsumoto (USPN 5,649,754) and Nagakubo et al. (Nagakubo, USPN 6,219,117 B1).

Re claim 11, as shown in Fig. 2, Suga discloses a back light device for use in a liquid crystal display device, comprising;

- at least one lamp 8;

- a light guide plate 2 for guiding light emitting from the lamp;

- a diffusing sheet 13 for diffusing light emitting from the light guide plate 2;

- at least one prism sheet 12 located on the diffusing sheet, concentrating light;

and

- a reflector 14 located under the light guide plate, reflecting light directing downward the light guide plate,

wherein, as shown in Fig. 6B, at least one of an edge portion of the reflector 14 includes a diffusion-reflective pattern 26 (Applicant's printing portion) made of white ink or the like containing a light scattering agent (col. 13, lines 19-31).

Re claim 12, although Suga discloses a liquid crystal display device using the back light device as described above (col. 3, lines 52-55), Suga does not disclose the liquid crystal display device comprising two substrates with a liquid crystal layer interposed therebetween. However, it is obvious that the liquid crystal display device comprises two substrates with a liquid crystal layer interposed therebetween as well known in the art.

Suga discloses a back light device for use in a liquid crystal display device that is basically the same as that recited in claims 11 and 12 except for the ink of the printing portion being colorless instead of white and a protecting sheet located on the prism sheet.

At first, as shown in Fig. 3(B), Matsumoto discloses a back light device for use in a liquid crystal device comprising a diffusing plate 8 having a printing portion 10 made of transparent ink (or colorless ink) to reduce irregular reflection, wherein the quantity of irregular reflection is adjustable by varying the degree of roughness of the transparent ink surfaces or by mixing an irregularly reflecting additive (or light scattering agent) into the transparent ink (col. 6, lines 29-65).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the reflector of the back light device of Suga with the teaching of Matsumoto by using colorless ink containing a light scattering agent for the printing portion in order to cause irregular reflection in an appropriate degree, and hence provide a substantially uniform intensity of illumination (col. 6, lines 32-57 and col. 7, lines 5-8).

Further, as shown in Fig. 1, Nagakubo discloses a liquid crystal display device comprising a back light device and a protecting sheet 2 located on a prism sheet 3 to diffuse light and protect the surface of the prism sheet 3 (col. 6, lines 25-57).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the back light device of Suga with the teaching of Nagakubo by forming a protecting sheet on the prism sheet in order to protect the surface of the prism sheet (col. 6, lines 25-30).

Re claims 13 and 14, the back light device of Suga has two lamps 8 as shown in Fig. 1.

Re claims 15-18, the light guide plate 2 of Suga has a plurality of patterns 6, wherein the patterns are dots (col. 6, lines 60-67).

Finally, re claims 19 and 20, Suga discloses that light reflected from a bottom surface of the device causes constructive interference with light emitting from the lamp, whereby a bright line is prevented (col. 13, lines 19-28).


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi V. Duong

03/28/2006



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800